#### INSECUTOR INSCITLÆ MENSTRUUS

# ON SOME NEW THYSANOPTERA FROM SOUTHERN INDIA

## By J. DOUGLAS HOOD

The material described below was transmitted for determination by T. V. Ramakrishna Aiyar, Government Entomologist, and was collected at Coimbatore, Southern India. I have taken pleasure in naming one of the more interesting species in his honor.

## Scirtothrips dorsalis, new species.

*Female* (*macropterous*).—Length about 0.9 mm. Color straw yellow, sides of thorax slightly darker; abdominal segments 3–8 each with a basal transverse dark line in the median fourth followed posteriorly by a light brown blotch; segment 2 of antenna about concolorous with body, segment 1 paler, 3–8 gray-brown, 3–5 paler basally, 4 and 5 each with a narrow dark ring at base; fore wings nearly uniform gray, hind wings pale, with dark median line.

Head about 1.77 times as wide as long and about 0.7 as long as prothorax; cheeks nearly straight, slightly converging posteriorly; frontal costa nearly 0.9 as wide as basal antennal segment. Eyes slightly protruding, fully three times as long as their distance from posterior margin of head, 0.7 as wide as their interval, setose. Ocelli approximate, opposite center of eyes, pigment bright red. Antennæ three times as long as head, normal to the genus.

Prothorax about 1.5 times as wide as long; pronotum with minute, close, transverse striæ visible only under high magnification, and a few scattered dark bristles, the pair at the posterior angles short, stout, and dark, equal in length to segment 2 of antenna. Pterothorax about 1.3 times as wide as prothorax. Wings of fore pair about eleven times as long as greatest subbasal width exclusive of scale, 2.65 times as long as antennæ, and nearly 4.5 times as long as width of head; anterior vein with a group of three dark bristles in basal fourth, a second group of three in second fourth, one bristle at middle, and two more near tip; posterior vein with two or three bristles in apical half.

Abdomen with last segment blunt, nearly as wide as long, not divided above; bristles light brown, normal to the genus.

Measurements of holotype (female): Length 0.876 mm.; head, length 0.075 mm., width 0.133 mm.; eyes, length 0.054 mm., width 0.039 mm.; prothorax, length 0.108 mm., width 0.158 mm.; pterothorax, length 0.204 mm., width 0.208 mm.; abdomen, width 0.240 mm.; fore wings, length 0.594 mm., width at middle 0.034 mm., near base 0.053 mm.

Antennal segments:	1	2	3	4	5	6	7	8
Length (µ)	19	34	40	37	37	38	7	12
Width $(\mu) \dots \dots$	21	24	18	18	15	15	7	5
Total length of antenna, 0	.224	ının.						

Described from 34 females taken by T. V. Ramakrishna Aiyar on castor and chillies shoots, at Coimbatore, India, March 13 and 14, 1916.

Readily known by the abdominal coloration.

## PERISSOTHRIPS, new genus

Body almost free from sculpture. Head short, broad, and exceedingly small, nearly twice as wide as long. Antennæ eight-segmented, the second segment large and subequal in length to third and sixth; segments 3 and 4 with forked sense cones. Mouth cone very long and slender, about twice the length of head and surpassing base of prosternum; maxillary palpi three-segmented, basal segment longest, middle segment Prothorax long, about three times the length of shortest. head, slightly widened behind; posterior angles with one pair of outstanding short bristles. Legs short and stout: fore tibiæ of male slightly prolonged at apex within and with a minute acute tooth, that of female angulate and with a small bristle arising from the apex of the angle. Wings slender, weakly fringed, fore pair with two indistinct longitudinal veins. Abdomen of female sharply conical at tip, the last three segments long and more heavily chitinized; male with

#### INSECUTOR INSCITIÆ MENSTRUUS

the posterior margins of segments 4-8 prolonged into a series of oblique, postero-laterally-directed acute teeth.

Type: Perissothrips parviceps, new species.

The unusual features of the single species for which this genus is erected are the small size and extreme shortness of the head, the great length of the mouth-cone, the armed fore tibia, and, in the male, the armature of the intermediate abdominal segments. The first two characters and the acutely pointed abdomen ally it closely with the North American *Chilothrips*, with which, however, it can not be confused.

Perissothrips parviceps, new species. (Pl. III, figs. 3-6.)

*Female* (*macropterous*).—Length about 0.9 mm. Color uniform straw yellow; antennæ with segment 4 gray in apical half and segments 6–8 dark brown, 5 sometimes grayish at tip; wings lightly clouded with yellowish.

Head nearly twice as wide as median dorsal length, broadest basally, cheeks nearly straight, slightly diverging behind; occiput with two or three faint anastomosing lines; interocellar and anteocular bristles small and inconspicuous. Eyes very minutely setose, about three times as long as their distance from posterior margin of head, and wider than their interval. Ocelli equal in size, the posterior pair slightly more widely separated than their distance from anterior ocellus; pigment bright red. Antennæ (Pl. III, fig. 3) about 3.7 times as long as head.

Prothorax about 2.84 times as long as head, sides slightly convex and diverging posteriorly, where it is 0.9 as wide as the median dorsal length; posterior angles with one pair of short bristles; surface smooth. Wings of fore pair with about 18 bristles on costa; anterior vein with a basal group of three bristles, followed closely by another group of three, and then by three widely separated ones in apical half; posterior vein with an equidistant series of four. Legs short and stout; fore femora swollen, fore tibiæ angulate at apex within and with a small bristle arising from the apex of the angle.

Abdomen about 1.4 times as wide as prothorax, smooth.

92

acutely conical and somewhat more heavily chitinized at apex; segment 10 longer than 9, divided above; bristles moderately long, pale.

Measurements of holotype (female): Length 0.893 mm.; nead, length 0.052 mm., greatest width 0.093 mm.; eyes, length 0.039 mm., width 0.033 mm.; prothorax, length 0.148 mm., width 0.134 mm.; pterothorax, width 0.174 mm.; abdomen, greatest width 0.204 mm.; fore wings, length 0.492 mm., width at middle 0.027 mm., near base 0.050 mm.

Antennal segments:	1	<b>2</b>	3	4	5	6	7	8
Length $(\mu)$	17	33	34	30	27	34	7	11
Width $(\mu)$	21	20	16	16	16	13	6	5
Total length of antenna, 0	.193	mm.						

Male (macropterous).—Length about 0.8 mm. Color and structure essentially as in female, except as follows: Fore tibiæ (Pl. III, fig. 6) slightly prolonged at apex within, forming a minute acute tooth. Abdomen with posterior margins of segments 4–8 prolonged into a series of oblique, posterolaterally-directed acute teeth (Pl. III, fig. 4); segment 9 unarmed.

Measurements of allotype (male): Length 0.792 mm.; head, length 0.059 mm., greatest width 0.096 mm.; eyes, length 0.042 mm., width 0.033 mm.; prothorax, length 0.139 mm., width 0.145 mm.; pterothorax, width 0.180 mm.; abdomen, greatest width 0.195 mm.; fore wings, length 0.492 mm., width at middle 0.027 mm., near base 0.050 mm.

Antennal segments:	1	<b>2</b>	3	4	5	6	7	8
Length (µ)	18	30	33	28	<b>29</b>	33	6	9
Width $(\mu)$	21	18	15	15	14	13	6	4
Total length of antenna, 0.1	86 r	nm.	/					

Described from 48 females and 2 males taken by T. V. Ramakrishna Aiyar on shoots of *Ailanthus excelsa* at Coimbatore, India, in May, 1915.

Readily distinguished by the generic characters. The form of the tip of the abdomen of the female is suggestive of *Oxythrips*.

#### INSECUTOR INSCITLÆ MENSTRUUS

# Rhipiphorothrips cruentatus, new species.

*Female* (*macropterous*).—Length about 1.4 mm. Dorsal surface deeply reticulate. Color of fully matured individuals dark blackish brown, with legs and antennæ yellow and the head, dorsum of pterothorax laterad and caudad to scutellum, median third of abdomen, and last three abdominal segments distinctly paler; segments 7 and 8 of antennæ and apex of segment 6 more or less darkened with gray; fore wings yellowish, with costa and longitudinal veins slightly darker, and scale, posterior margin, and extreme base, dark brown; hind wings yellowish, with dark brown median vein. Teneral individuals paler than as above described and with the sides of head, thorax, and abdomen suffused with blood-red hypodermal pigmentation.

Head deeply rugoso-reticulate, about 1.21 times as wide as long and slightly longer than prothorax, very slightly broadest across eyes; vertex strongly elevated and produced in front of eyes over insertion of antennæ, notched anteriorly; cheeks nearly parallel in basal half, swollen behind eyes and abruptly constricted at extreme base where inserted in prothorax, the anterior margin of this neck-like constriction marked with a prominent, raised, arcuate, dark carina. Eyes about equal in length to their distance from posterior margin of head and half as wide as their interval, strongly protruding in front, nonsetose. Ocelli nearly equidistant, anterior ocellus directed forward and situated slightly in advance of anterior margin of eyes, posterior ocelli directed laterally; pigment bright red. Antennæ about 2.2 times as long as head, structure normal to genus.

Prothorax about 1.35 times as wide as long, as wide at apex as at base, sides evenly rounded, slightly shorter than head and with similar reticulation; color distinctly darker than that of head. Pterothorax 1.5 times as wide as pro-thorax, deeply reticulated; scutellum rugose, about 1.43 times as long as wide. Wings normal to genus, the scale of the fore pair heavily chitinized and, when the wings are at rest, fitting under the edge of the scutellum.

94

#### INSECUTOR INSCITIÆ MENSTRUUS

Abdomen about equal in width to pterothorax, sides deeply longitudinally rugoso-reticulate; segment 10 divided above; all bristles minute and scarcely visible, a dorsal pair near apex of segment 10 more conspicuous than the others, slightly expanded and truncate at apex.

Measurements of holotype (female): Length 1.37 nun.; head, length 0.174 mm., width across eyes 0.211 mm.; eyes, length 0.078 mm., width 0.054 mm., interval 0.106 mm., distance from posterior margin of head 0.070 mm.; prothorax, length 0.169 mm., width 0.228 mm.; pterothorax, width 0.341 mm.; abdomen, greatest width 0.348 mm.; fore wings, length 0.768 mm., width at middle 0.090 mm., near base 0.046 mm.

Antennal segments:  $\mathbf{2}$ 3 4 5 6 7 8 1 Length  $(\mu)$ ..... 30 547563 5048 17 50Width  $(\mu)$ ..... 28 39 26 2525 2012 6 Total length of antenna, 0,387 mm.

*Male* (*macropterous*).—Length about 1.1 mm. Color and structure essentially as in female, except as follows: Prothorax brown, concolorous with head. Abdomen bright yellow, sides with blood-red hypodermal pigmentation; sternites 3–7 each with a sharply delimited circular area at base; segment 4 with a small, lateral, toothlike projection; segment 10 with the lateral bristles simple, not dilated in the form of a broad V.

Measurements of allotype (male): Length 1.08 mm.; head, length 0.166 mm., width across eyes 0.203 mm.; eyes, length 0.072 mm., width 0.048 mm., interval 0.108 mm., distance from posterior margin of head 0.072 mm.; prothorax, length 0.152 mm., width 0.208 mm.; pterothorax, width 0.300 mm.; abdomen, greatest width 0.293 mm.; fore wings, length 0.672 mm., width at middle 0.081 mm., near base 0.045 mm. Antennal segments: 1 2 3 4 5 6 7 8

intennal segments:	1	$^{2}$	3	4	5	6	7	8
Length $(\mu)$	27	51	70	54	47	40	16	48
Width $(\mu)$	27	36	<b>24</b>	23	24	<b>20</b>	11	7
Total length of antenna,	0.3	53 m	m.					

Described from 15 females and 7 males collected as follows: Coimbatore, India, March 14, 1916, T. V. Ramakrishna Aiyar; 10 females, 5 males, on grapevine leaves.

Coimbatore, India, March 15, 1916, T. V. Ramakrishna Aiyar; 4 females, 2 males, on grapevine leaves.

Peradeniya, Ceylon, February, 1917, A. Rutherford; 1 female, on leaves of *Careya arborea* (C. B. Williams' collection, No. 1002).

Closely allied to the two described species of the genus, but easily known from them by the secondary sexual characters of the male, the form of the prothorax, and the coloration.

Neoheegeria indica, new species. (Pl. III, figs. 1 and 2.)

*Female* (*macropterous*).—Length about 1.3 mm. Color dark blackish brown, with all tarsi, apical three-fourths of fore tibiæ, and tips of middle and hind tibiæ light lemon yellow; antennæ with apex of segment 2, all of segments 3–6, and basal two-thirds of segment 7, light lemon yellow, the remainder brown.

Head about 1.2 times as long as wide, broadest at posterior third, with sides slightly arcuate, and somewhat wider at posterior margin of eyes than at base, which is slightly constricted; vertex slightly produced over base of antennæ, the anterior ocellus barely overhanging and nearly attaining frontal costa; dorsal and lateral surfaces with faint anastomosing striæ and a few very minute spines; postocular bristles slender, dilated at tip, and about three-fourths as long as eyes. Eyes about one-third as long as head, not at all protruding, about equal in width to their interval, and of equal extent on dorsal and ventral surfaces. Ocelli anterior in position, the posterior pair opposite a line drawn behind anterior third of eyes. Antennæ (Pl. III, fig. 2) about 1.6 times as long as head, formed as in Haplothrips; sense cones short and inconspicuous; formula: 3, 1-1; 4, 2-2; 5, 1-1+'; 6, 1-1+', 7 with one on dorsum near apex. Mouth cone acute and constricted at apex, attaining posterior margin of prosternum.

Prothorax along median dorsal, line about 0.8 as long as head and (inclusive of coxæ) about 1.9 times as wide as long,

#### INSECUTOR INSCITIÆ MENSTRUUS

surface smooth; all usual bristles present, dilated at tip, and stouter than postoculars, the two pairs on anterior margin shortest. Wings distinctly narrowed at middle, nearly colorless; subbasal bristles equal in length, the two basal ones dilated at tip; six or seven accessory hairs on posterior margin. Tarsal tooth short, stout, and basal in position.

Abdomen only slightly wider than pterothorax and almost without sculpture; tergites 3-7 at extreme lateral margins with from five to seven pairs of small, stout spines, in addition to the usual one of two pairs of sigmoid bristles and the long straight one near posterior angles. Tube nearly twice as long as basal width and twice as wide at base as at apex, sides slightly convex. Lateral bristles on segments 3-8 short, blunt; terminal bristles slightly longer than tube, brown.

Measurements of holotype (female): Length 1.31 mm.; head, length 0.191 mm., width 0.156 mm.; eyes, length 0.066 mm., width 0.048 mm.; interval 0.048 mm.; postocular bristles, length 0.048 mm.; prothorax, length 0.151 mm., width (inclusive of coxæ) 0.283 mm.; pterothorax, width 0.330 mm.; abdomen, greatest width 0.336 mm.; tube, length 0.120 mm., width at base 0.068 mm., at apex 0.033 mm.

intennal segments:	1	$^{2}$	3	4	5	6	7	8	
Length $(\mu)$	33	44	46	44	42	40	38	22	
Width $(\mu)$	28	28	28	28	<b>26</b>	23	19	11	
Total length of antenna,	0.30	)9 m	m.						

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Male (macropterous).—Length about 1.4 mm. Color and structure essentially as in female, except as follows: Eyes slightly larger, about 0.36 as long as head. Antennæ about 1.73 times as long as head. Prothorax nearly 0.9 as long as head; anterior marginal bristles sometimes minute and pointed. Tarsal tooth large, stout, and triangular. Abdomen more slender.

Measurements of allotype (male): Length 1.39 mm.; head, length 0.192 mm., width 0.155 mm.; eyes, length 0.072 mm., width 0.045 mm., interval 0.054 mm.; postocular bristles, length 0.057 mm.; prothorax, length 0.168 mm., width (inclusive of coxæ) 0.322 mm.; pterothorax, width 0.336 mm.; abdomen, greatest width 0.300 mm.; tube, length 0.120 mm., width at base 0.065 mm., at apex 0.033 mm.

Antennal segments: 3 4 5 6 7 8 1 2 Length  $(\mu)$ ..... 36 46 50 48 47 42 3925·Width  $(\mu)$  ..... 26  $\mathbf{26}$  $\mathbf{26}$ 27 2321 1911 Total length of antenna, 0.333 mm.

Described from 5 females and 3 males taken by T. V. Ramakrishna Aiyar on shoots of *Ailanthus excelsa* at Coimbatore, India, in May, 1915.

The species bears a close resemblance to those of the genus *Haplothrips*, but may be known by the long, pointed mouth cone.

# ARRHENOTHRIPS, new genus

Head much longer than wide, vertex broadly rounded in front, not or only slightly produced; cheeks without spinebearing warts, subparallel. Eyes rounded, prominent but not protruding. Ocelli anterior in position, the median ocellus overhanging. Antennæ eight-segmented; fifth segment slightly shorter than the fourth and longer than the sixth. Mouth cone acute, surpassing middle of prosternum; labial palpi much shorter than maxillary palpi. Prothorax enlarged in the female and equal in length to head, shorter and not enlarged in the male; fore femora of female greatly swollen, those of male only slightly so; both sexes with tibiæ slightly produced at apex within and tarsi with a large stout tooth. Pterothorax narrowed behind. Wings broad and of equal width throughout, closely fringed. Tube long (0.8 the length of head in the genotype).

Type: Arrhenothrips ramakrishnæ, new species.

This genus is allied to *Gynaikothrips* and is thus a member of the large *Liothrips* complex whose species, almost without exception, are phyllophilous. In no genus of this group, however, are the fore legs and prothorax of the female enlarged and swollen; it is invariably the male which possesses these characters. The presence of the large tarsal tooth in both sexes is another important character.

98

# Arrhenothrips ramakrishnæ, new species. (Pl. IV, figs. 1 and 2.)

*Female* (*macropterous*).—Length about 2.5 mm. Color dark blackish brown, with head, fore femora, middle and hind tarsi, and interstices of pterothoracic plates paler; fore legs with tibiæ, tarsi, and apices of femora yellow, the tibiæ darkened with gray or brown, particularly along outer surface; antennæ with segment 1 and inner basal half of segment 2 blackish brown, the remainder clèar lemon yellow and of deeper tint toward apex.

Head about 1.65 times as long as wide, as broad across eyes as slightly behind them, cheeks nearly straight and slightly converging to base; vertex full, very slightly produced; dorsal and lateral surfaces deeply transversely striate with anastomosing lines, giving the cheeks a slightly roughened or serrated appearance; postocular bristles shorter than eyes, dilated at apex. Eyes one-third as long as head, prominent, slightly wider than their interval. Ocelli equidistant; anterior ocellus overhanging, opposite anterior margin of eyes; posterior ocelli opposite anterior half of eyes. Antennæ (Pl. IV, fig. 2) about 1.6 times as long as head; sense cones short and inconspicuous; formula: 3, 0-1; 4,  $1-2^{+\prime}$ ; 5,  $1-1^{+\prime}$ ; 6,  $1-1^{+\prime}$ ;  $\gamma$  with one on dorsum near apex.

Prothorax equal in length to head and (inclusive of coxæ) nearly 1.7 times as wide as long, with dark median line, surface rather deeply subreticulate with anastomosing lines; all usual bristles present, anterior marginals and midlaterals small and pointed, others well developed and blunt, the two pairs near posterior angles longest and subequal to postoculars; coxal bristle about equal to anterior angular. Pterothorax wider than long and about equal in width to prothorax, sides slightly arcuate and converging posteriorly. Wings yellowish at base; fore wings with the three subbasal bristles about equal to coxal bristle and dilated at tip, with about fifteen accessory hairs on posterior margin. Fore femora about 1.5 times as long as and distinctly wider than head; fore tibiæ produced and subangulate at inner surface of apex; fore tarsi with a stout and nearly straight tooth which is usually longer than width of tarsus.

Abdomen formed as in *Liothrips*, about equal in width to mesothorax. Tube about 0.8 as long as head and about 2.7 times as long as basal width, which is 2.1 times the apical. Lateral abdominal bristles dilated at apex, light brown in color, those on segment 9 pointed and nearly as long as tube; terminal bristles two-thirds as long as tube.

Measurements of holotype (female): Length 2.52 mm.; head, length 0.353 mm., width behind eyes 0.214 mm., width at base 0.187 mm.; eyes, length 0.114 mm., width 0.071 mm., interval 0.068 mm.; postocular bristles, length 0.084 mm.; prothorax, length 0.336 mm., width (inclusive of coxæ) 0.562 mm.; pterothorax, length 0.492 mm., width 0.552 mm.; abdomen, greatest width 0.569 mm.; tube, length 0.276 mm., width at base 0.102 mm., at apex 0.048 mm.

intennal segments :	1	<b>2</b>	3	4	<b>5</b>	6	7	8
Length (µ)	69	72	99	98	87	75	65	40
Width $(\mu) \dots \dots$	51	44	39	46	43	39	33	16

Total length of antenna, 0.575 mm.

Male (macropterous).—Length about 2 mm. Color and structure essentially as in female, except as follows: Fore femora concolorous with prothorax and distinctly darker than head. Head 1.5 times as long as wide, cheeks distinctly rounded; antennæ about 1.7 times as long as head. Prothorax only about three-fourths as long as head and nearly 1.9 times as wide as long. Pterothorax distinctly wider than prothorax. Fore femora equal in length to and distinctly narrower than head; tarsal tooth shorter than width of tarsus. Abdomen narrower than mesothorax. Tube nearly three times as long as basal width, which is nearly twice the apical.

Measurements of allotype (male): Length 1.98 mm.; head, length 0.288 mm., width behind eyes 0.190 mm., width at base 0.156 mm.; eyes, length 0.100 mm., width 0.061 mm., interval 0.059 mm.; postocular bristles, length 0.076 mm.; prothorax,

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length 0.222 mm., width (inclusive of coxæ) 0.414 mm.; pterothorax, width 0.452 mm.; abdomen, greatest width 0.431 mm.; tube, length 0.240 mm., width at base 0.084 mm., at apex 0.045 mm.

Antennal segments:	1	2	3	4	5	6	7	8
Length $(\mu)$	54	57	81	78	74	66	60	35
Width $(\mu)$	42	38	36	41	40	37	<b>29</b>	1.4
Total length of antenna.	0.50	5 mm	n.					

Described from 11 females and 18 males taken on shoots of *Mimusops clengi* at Coimbatore, India, April 6, 1916, by T. V. Ramakrishna Aiyar, Government Entomologist, after whom the species is named.

Liothrips ordinarius, new species. (Pl. IV, figs. 3 and 4.)

Female (macropterous).—Length about 2 mm. (1.9-2.2 mm.). Color black; fore tarsi and middle of inner surface of fore tibiæ brownish yellow, middle and hind tarsi and articulations of legs brown; antennal segments 3–6 yellow, 3 sometimes with a narrow brown band at basal third and generally with another at extreme apex, 4 darker than 3 and clouded with brown in at least the apical half, 5 and 6 concolorous with 4 and suffused with brown in apical third and two-fifths rerespectively, 7 and 8 dark blackish brown, the former yellow at base; fore wings very light gray, with the scale and the region of the three subbasal bristles dark brown, margins more or less darkened.

Head about as wide as long, broadest slightly behind eyes, cheeks gently arched, slightly convergent posteriorly; vertex truncate, not produced, the anterior ocellus directed forward and overhanging; dorsal and lateral surfaces transversely striate with anastomosing lines and with a very few minute bristles; postocular bristles capitate, shorter than eyes. Eyes nearly 0.4 as long as head, not protruding. Posterior ocelli in front of a line drawn through middle of eyes. Antennæ (Pl. IV, fig. 3) about 2.2 times as long as head, of the general form and structure common to the species of the genus, but with segment 8 subpedicellate and not closely united to seg-

ment 7; sense cone formula: 3, 0-1; 4, 1-2+'; 5, 1-1+'; 6, 1-1+'; 7 with one on dorsum near apex. Mouth cone long, acute, attaining base of prosternum.

Prothorax along median dorsal line about three-fourths as long as head and (inclusive of coxæ) about 2.3 times as wide as long; all bristles present, capitate, the two pairs at the posterior angles longest and subequal; coxal bristle about equal in length to midlateral. Pterothorax wider than prothorax, sides slightly arcuate. Wings long, closely fringed, of nearly the same width throughout; fore pair with the three subbasal bristles capitate and with about 25 accessory hairs on posterior margin. Fore tarsi unarmed.

Abdomen of normal form, large and heavy, wider than pterothorax. Tube about 0.9 as long as head and slightly more than twice as wide at base as at apex. Lateral abdominal bristles capitate, yellowish; terminal bristles pointed, brown, slightly shorter than tube.

Measurements of paratype (female): Length 1.90 mm.; head, length 0.208 mm., greatest width 0.215 mm., width at base 0.187 mm.; eyes, length 0.079 mm., width 0.067 mm., interval 0.078 mm.; postocular bristles, length 0.062 mm.; prothorax, length 0.161 mm., width (inclusive of coxæ) 0.372 mm.; pterothorax, length 0.408 mm., width 0.408 mm.; abdomen, greatest width 0.461 mm.; tube, length 0.186 mm., width at base 0.088 mm., at apex 0.042 mm.

Antennal segments: 1 2 3 4 5 6 7 8 Length  $(\mu)$ ..... 48 5659 66 60 63 61 48Width  $(\mu)$  ..... 38 35 34 39 34 30 24 16 Total length of antenna, 0.461 mm.

*Male* (*macropterous*).—Length about 1.8 mm. Color and structure essentially as in female, except that the antennæ are twice as long as head. The fore tarsi are unarmed.

Measurements of paratype (male): Length 1.84 mm.; head, length 0.222 mm., greatest width 0.211 mm., width at base 0.174 mm.; eyes, length 0.086 mm., width 0.066 mm., interval 0.072 mm.; postocular bristles, length 0.068 mm.; prothorax,

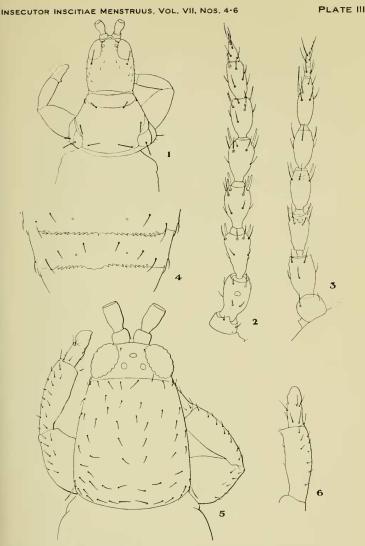


Fig. 1. *Neoheegeria indica*, head and prothorax; female, holotype. (Minute bristles omitted from appendages and pronotum.)

Fig. 2. Neohecgeria indica, left antenna; female, holotype.

Fig. 3. Perissothrips parviceps, right antenna; female, paratype.

Fig. 4. *Perissothrips particeps*, posterior margins of abodminal segments 6 and  $\tau$ ; male, allotype.

Fig. 5. Perissothrips parviceps, head and prothorax; female, holotype. Fig. 6. Perissothrips parviceps, right fore tibia; male, allotype.